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| 09/767,522 | 01/23/2001 | Lee M. Proctor | CE08569R | 3399 |

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| EXAMINER | |
|---|---|
| WOZNIAK, JAMES S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2655 | |

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/767,522 | PROCTOR ET AL. | |
| | Examiner | Art Unit | |
| | James S. Wozniak | 2655 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 7/15/2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-17,21 and 22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17,21 and 22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 May 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. In response to the office action from 3/15/2004, the applicant has submitted an amendment, filed 7/15/2004, amending the claims 6 and13, canceling claims 18-20, and adding new claims 21 and 22, while arguing to traverse the art rejection based on the limitations regarding the modification of a filter state based on the validity of a frame rate determination and the detection of prior frame rate determinations *(Amendment, Page 6)*. Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments, altered only with respect to the added claims.

2. Based on the amendments to claims 6 and 13, the examiner has withdrawn the previous objections directed towards minor informalities.

### *Response to Arguments*

3. The applicant's arguments have been fully considered but they are not persuasive for the following reasons:

- With respect to **Claims 1, 9, and 15**, the applicant argues that Chen *(U.S. Patent: 5,751,725)* fails to teach a method for detecting prior frame rate determination errors *(Amendment, Page 6)*, however, as noted in the prior office action *(Pages 2-3)*, Chen

teaches a means for frame rate determination error detection utilizing SER thresholds in regards to this limitation *(Col. 11, Lines 15-30)*. Since the threshold adjustment is based on a difference between a first and second frame rate, in suspicion of a frame rate error, rolling or continuous frame rate error detection is implemented, wherein the error detection resulting from the differing frame rate *(suspected error since frame rate between frames typically does not differ, Col. 11, Lines 17-25)* produces tighter thresholds *(Col. 11, Lines 25-30)*. Therefore, Chen teaches a frame rate determination error detection method that is functionally equivalent to the currently claimed limitation.

Also, while claim 9 does recite a method for detecting frame rate determination errors for previous frames, independent claims 1 and 15 merely disclose error detection based on a single data frame and rely on dependent claims 2 and 16, respectively, to recite the inclusion of previous frame rate data in error detection, thus the applicant's argument regarding the aforementioned limitation is moot with respect to Claims 1 and 15.

Furthermore, with respect to Claims 1, 9, and 15, the applicant argues that Jacobs et al (U.S. Patent: 5,414,796) fails to teach modifying a filter state based on the validity of a frame rate determination *(Amendment Pages 6-7)*, however Jacobs teaches modifying a pitch gain parameter in response to an error, as is noted in the prior office action *(Page 3)*. The applicant argues that "Jacobs instead teaches zeroing-out received encoded parameters of the received erroneous frame before using the frame in the decode process" (Amendment, Page 6), however the pitch gain

is a synthesis filter parameter as is noted by Jacobs *(Col. 11, Lines 54-57)*. Thus, Jacobs teaches the aforementioned claim limitation.

- With respect to **Claims 3 and 10**, the applicant argues that Chen fails to teach "determining if a transition from the first frame rate to the second frame rate was invalid" (Amendment, Page 7), however Chen teaches the SER rolling threshold, which, as is noted above with respect to Claims 1, 9, and 15, is based on an invalid frame transition detected by frame comparison, which is a functional equivalent of the current claim language. The applicant also notes the use of "predefined rate transition rules" *(Amendment, Page 7)*, however no such specific rules, which could differentiate the presently claimed invention from the disclosure of Chen, have been claimed.
- With respect to **Claims 6 and 13**, the applicant argues that Jacobs fails to teach a step of resetting a state of a speech decoder filter (Amendment, Page 7), however, as is noted above with respect to Claims 1, 9, and 15, Jacobs teaches resetting a pitch gain which is a parameter of the synthesis filter.

Thus, the previous prior art rejection is maintained and repeated below, altered only with respect to the added claims.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-17, 21, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (5,751,725), in view of Jacobs et al. (5,414,796).

As per claims **1, 2, and 9**, Chen discloses a method of:

Receiving a frame and determining the rate of a frame (Col. 6, lines 1-6)

Determining if first frame rate was in error to produce an error determination, by applying more stringent thresholds when an error is suspected in the frame (Col. 9, lines 56-61). Specifically, this is done by comparing a rate of a current frame with a rate of a previous frame and adjusting the thresholds based on the results of comparison (Col. 11, Lines 25-30). 25-30). Because the difference between frame rates is probabilistically unlikely (-10 %) (Col. 6, lines 16-18), the tightening of thresholds will ensure that transitional frames encoded at ½ and ¼ rates will not be mistakenly erased.

Chen does not disclose updating the state of decoder filter based on the error determination.

Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder. By using the techniques taught by Jacobs et al., the

system would be able to detect incorrect rate decisions and quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per **Claims 3 and 10**, Chen discloses determining if a transition between frames is invalid by applying tight maximum and minimum SER thresholds when rates differ between adjacent frames (Col. 11, lines 27-30). Therefore, the transition will be declared invalid if it passed under the old thresholds, but failed to meet the updated thresholds.

As per **claims 4 and 11**, Chen discloses determining a full and eighths frame rates for the first and second compared frames, respectively. (Col. 11, lines 15-25).

As per **claims 5 and 12**, Chen discloses determining a rate from a group of full, half, quarter and eighth rates (Col. 6, lines 1-6).

As per **claims 6 and 13**, Chen does not disclose resetting the state of the speech decoder filter." Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C) It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs et al. and change the characteristics of the filter in order to reduce the effects of the wrong filter characteristics on the output of the decoder. Furthermore, it would have been obvious to one of ordinary skill in the art that changing

characteristics of a filter would involve first resetting the current state of the filter. If the state of the filter were not reset, there would be a high probability of incorrect filter behavior since the erroneous old filter settings could excessively interfere with the future settings.

As per **claim 7 and 14**, Chen does not disclose "updating the state of the speech decoder filter from a group consisting of a pitch filter, a vocal tract filter, and a post filter."

Jacobs et al. teach the use of pitch filter (elem. 156, FIG. 6), formant filter (vocal tract filter) (elem. 158, FIG. 6) and post filter (elem. 160, FIG. 6) in the design of variable rate vocoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs to reduce the effects of the wrong filter characteristics on the output of the vocoder. Because the vocoder taught by Jacobs et al. comprises a pitch filter, a formant filter and a post filter, the steps of updating these filters' coefficients would reduce the undesirable noise produced by the phone when the decoder incorrectly identifies the frame rate.

As per **claim 8**, Chen does not disclose determining if the first frame was a signaling frame.

Jacobs et al. teach the use of blank frames in order to transmit signaling information, in which case the decoder filter coefficients are updated in order to mask the detected signaling frame (Col. 40, lines 39-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder, when the frame contains no speech information. Therefore, the system would quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per **claim 15**, Chen discloses a decoder (elem. 30, FIG. 1) that determines the rate of the incoming frame (Col. 6, lines 2-7). Chen does not disclose modifying the state of the filter based on the validity of frame rate.

Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder. By using the techniques taught by Jacobs et al, the system would be able to detect incorrect rate decisions and quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per **claim 16**, Chen discloses determining if first frame rate was in error to produce an error determination, by applying more stringent thresholds when an error is suspected in the frame (Col. 9, lines 56-61). This is done by comparing a rate of a current frame with a rate of a

previous frame and adjusting the thresholds based on the results of comparison (Col. 11, lines 25-30). Because the difference between frame rates is probabilistically unlikely (-10 %) (Col. 6, lines 16-18), the tightening of thresholds will ensure that transitional frames encoded at ½ and ¼ rates will not be mistakenly erased.

As per **claim 17**, Chen does not disclose "updating the state of the speech decoder filter from a group consisting of a pitch filter, a vocal tract filter, and a post filter."

Jacobs et al. teach the use of pitch filter (elem. 156, FIG. 6), formant filter (elem. 158, FIG. 6) and post filter (elem. 160, FIG. 6) in the design of variable rate vocoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs to reduce the effects of the wrong filter characteristics on the output of the vocoder. Because the vocoder taught by Jacobs et al. comprises a pitch filter, a formant filter and a post filter, the steps of updating these filters' coefficients would reduce the undesirable noise produced by the phone when the decoder incorrectly identifies the frame rate.

With respect to **Claim 21**, Jacobs recites the resetting of the pitch gain as applied to Claim 1, wherein the pitch gain is part of an adaptive codebook memory *(Col. 11, Lines 54-57 and memory, Col. 44, Lines 10-13)*.

With respect to **Claim 22**, Chen teaches the means for detecting a frame rate determination error (no detection of an error would inherently indicate a correct frame rate

determination) utilizing an SER threshold for both signaling and silence frames as applied to Claim 1, while Jacobs teaches the means of determining the presence of a signaling frame as applied to Claim 8.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: El-Maleh et al *(U.S. Patent: 6,804,218)*.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (703) 305-8669

and email is James.Wozniak@uspto.gov. The examiner can normally be reached on Mondays-Fridays, 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached at (703) 305-4827. The fax/phone number for the Technology Center 2600 where this application is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center receptionist whose telephone number is (703) 306-0377.

James S. Wozniak
12/2/2004

DAVID OMETZ
PRIMARY EXAMINER
ART UNIT 2653